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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,587	02/19/2004	Takashi Watanabe	023971-0377	2484
22428 7590 11/08/2007 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER PILKINGTON, JAMES	
			ART UNIT 3682	PAPER NUMBER
			MAIL DATE 11/08/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,587

Applicant(s)

WATANABE ET AL.

Examiner

James Pilkington

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 7-29 is/are pending in the application.
- 4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-11 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/12/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the obtuse angle ($\theta 2$, claim 8) must be shown or the feature(s) canceled from the claim(s). The "obtuse angle" shown in Figure 4B is not greater than 90 degrees and therefore is not truly an obtuse angle. In fact the angle appears to be less than 90 degrees. The examiner is aware that drawings may not be drawn to scale but the claimed features must be shown and an obtuse angle is not shown in any of the drawings. Is the angle mislabeled and should truly be between surface 18a and L2 in accordance with the second full paragraph on page 10? No new matter should be entered.
2. In addition the drawings are objected to under 37 CFR 1.83(a) for not showing a second projected portion diametrically opposed to at least one of the first projected portions (CIm 9). The second projected portion is not diametrically disposed to any of the first projection portions; it is located in between the first projected portions and therefore cannot be diametrically disposed. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Clm 4 recites the limitation "a relatively thin wall." It is unclear to the examiner what this wall structure is thinner than as no reference for comparison has been provided. What is the wall "relatively" thinner than?

Clm 10 recites the limitation "at least one relatively thick wall portion." It is unclear to the examiner what the wall portion is relatively thicker than as no reference for comparison has been provided. What is the wall portion "relatively" thicker than?

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-5, 7-11 and 24-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Porsche, USP 2,102,973.

Re clms 1, 3-5, 7-11 and 24-29, Porsche discloses a differential for a wheeled motor vehicle comprising (C1/L3):

- A differential gear unit (gearing 6 and 13) including pinion gears (6,6',13 and 13') held by respective pinion shafts (1, 1', and 12)
- A differential case/case proper (11/11') for housing the gear unit, the case having at an inner wall (inside of housing) thereof grooves (openings for 1, 1' and 12) for respectively receiving therein the pinion shafts (1, 1' and 12), the differential case (11/11') being rotatable about a rotation axis (case 11/11' rotates around an axis corresponding to shaft 1 in Figure 3) above an oil level of lubricating oil (vanes 17 scoop up oil inside housing 15)
- Wherein the differential case (11/11') having:
 - an oil inlet opening (19) formed therethrough
 - An oil scooping up structure (17) wherein the oil scooping up structure comprises:
 - first projection portions (17 project from the case) formed on an outer surface of the differential case at portions that support the

pinion shafts (the vanes 17 extend out from the recess holding shaft 1' and extend from the recess for shaft 12 to that for shaft 1), the first projection portions (17) having an inclined surface (the vanes 17 are sloped), the inclined surface defining an acute angle relative to a tangential line of the outer surface at a center point of the projected portion (see Figures 1 and 2 where the vanes are shown as acute angles or see the Figure at the end of this action)

- the oil scooping up structure (17) is integral with a major portion of the differential case (11/11')
- the oil scooping up structure (17) is shaped to push lubricant oil toward the inlets (19)
- The case (11) is a relatively thin wall structure (see Figure 3)
- The oil inlet opening (19) is positioned at a leading side of the first projection portion (17)
- At least a trailing part of a peripheral edge surface of the oil inlet opening defines an obtuse angle relative to a tangential line of the outer surface of the case at a center point of the inlet (see attached Figure)
- A second projected portion (other vane 17 between diametrically disposed first portions) formed on the outer surface of the differential case (11), the second portion and additional inlet (19) having the same shape as the first (see Figures 1 and 2)

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- The oil scooping up structure comprises at least one relatively thick wall portion (the base of the vanes 17 is thicker than the ends of the vanes) provided by the differential case (11) at a trailing position of another oil inlet (19), the relatively thick wall portion having an inclined surface at a leading side thereof with respect to the normal rotation direction, the inclined surface defining an acute angle relative to a tangential line of the outer surface the case (11)
- In which at least a trailing portion of a peripheral edge surface of said another oil inlet (19) opening defines an acute angle relative to a tangential line of the outer surface at a center point of the oil inlet opening (19)
- The case is of a split type having a first half (11) and a second half (11')
- The gear unit is of the type having two or more, including four, pinion gears (13, 13' C2/L 45 discloses 2 or more pinions) and two side gears (16 and 16')

Response to Arguments

7. Applicant's arguments with respect to the 35 USC 112 2nd paragraph rejection of claims 4 and 10 has been considered but are moot in view of the new ground(s) of rejection.
8. Applicant's arguments filed 9/12/07 have been fully considered but they are not persuasive.

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9. The Applicant argues that Porsche fails to anticipate claim 1 because Porsche teaches a universal joint and not a differential case and therefore does not show first projected portions formed on the outside of a differential case.

The Examiner disagrees. Porsche does indeed disclose a universal joint but this universal joint clearly includes a differential. Porsche clearly states in the second column beginning on line 23 that "a differential mechanism suitable for the differential transmission of power" is being used and also refers to 6 and 6' as differential gears, 11 as a differential housing and 13 and 13' as pinions. Although the reference is being used in a different environment it is still a differential mechanism and does indeed anticipate the claim. With regards to the phrase "at portions that support the pinion shafts through the grooves" the phrase "at portions" does not limit the structure from only extending from the end of that particular section. A portion can be any area at the top, bottom or sides of the area in question. In the case of Porsche the vanes extend from the side of the area that holds shaft 12 and away from the area that holds shaft 1 or away from the area that holds shaft 1'.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 5,669,844 to Homan also discloses a similar differential lubrication structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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11/1/07


RICHARD RIDLEY
SUPERVISORY PATENT EXAMINER

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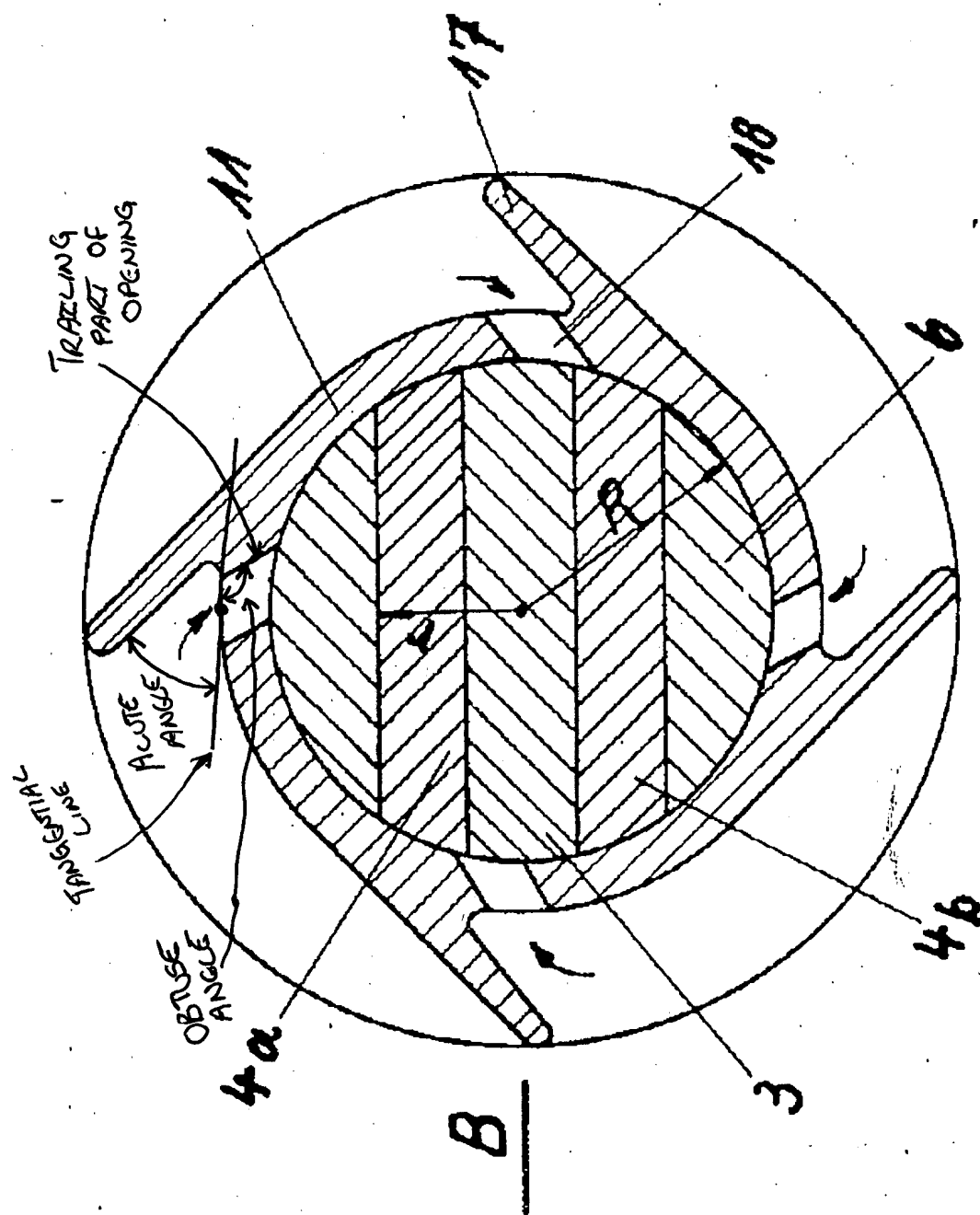


Fig. 4.